

Research Group on Energy & Clean Technologies

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Alessandro Tallini *Research Assistant*





Energy & Clean Technologies – *Energy efficiency*

Submitted Proposal

Industrial partnership

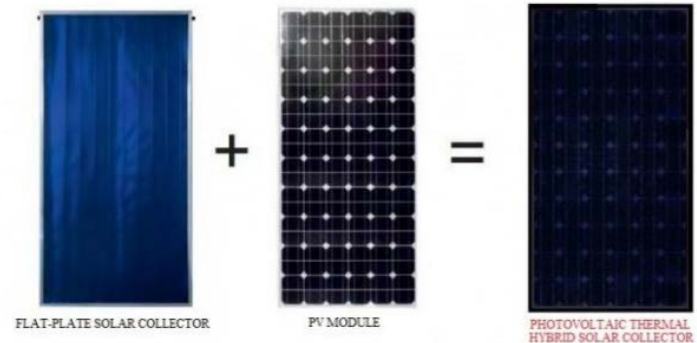
Smart Grid
Energy storage + RES

POLY-EN SYS Innovative and efficient systems for energy poligeneration
H2020 (2017)

Thermo-Instal Company
ELFRAN Franciszek Ścisłowicz
Cracow University of Technology



ELFRAN-HYBRID solution (hybrid solar thermal collector)



PV-T module construction (hybrid solar thermal collector)

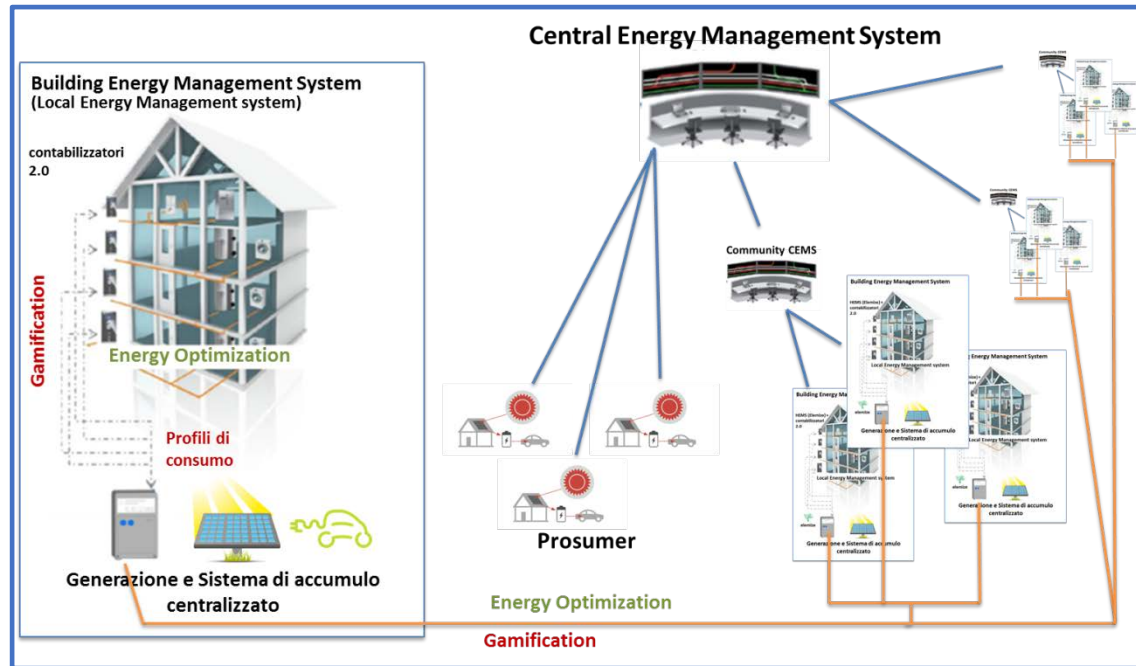
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Smart Grid

BEEP
Building Energy Efficiency Platform
Bioedilizia & Smart Building (2017)





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**“NewCo in L’Aquila” Contratto di Sviluppo
in tema Energia e Ambiente**
Totale del Contratto di Sviluppo: 26M€



EXCELLENCE THROUGH EXPERIENCE



***NewCo in L’Aquila
Contratto di Sviluppo
in tema Energia e Ambiente***

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Smart Port

Shore Side Electricity and Energy Efficiency Measures in Mediterranean Ports
CEF - Connecting Europe Facility 2014-2020



SSE Provision of shore side electrical power to a ship at berth while its engines are shut down

Set of equipment and system that can contribute for the environmental sustainability of the port **EEM**

- Goals
- Noise reduction in the port areas
 - Air pollution reduction into the areas neighboring at port (city)
 - Global reduction of the greenhouse emission

- Goals
- Increase of renewable resources exploitation
 - Environmental performance monitoring
 - Port's higher energy independence (greater safety, lower costs)
 - Port's higher energy efficiency.

- Enabling factors
- On board connection system
 - On shore connection system with voltage and frequency conversion
 - Storage system
 - Grid expansion
 - Electrical loads monitoring system

- Enabling factors
- Energy Management System
 - Energy storage system (battery)
 - Environmental monitoring system
 - E-Mobility
 - Generation plants with renewable sources (Photovoltaic panels)

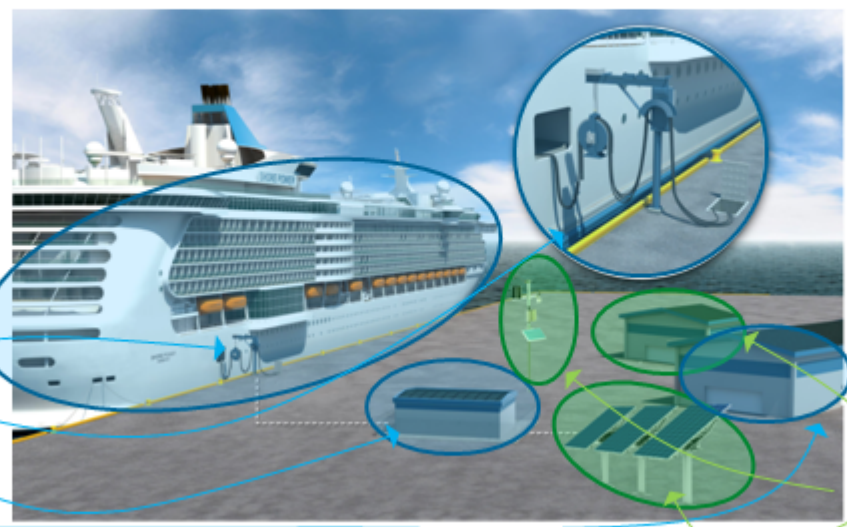


Image: processing on ABB illustration



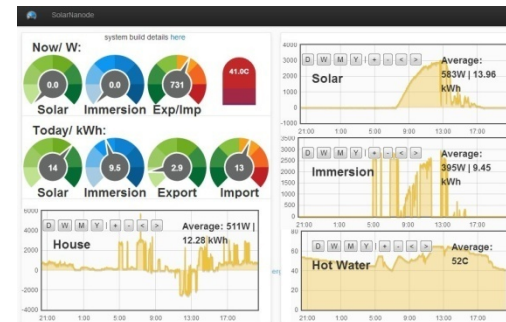
Energy & Clean Technologies – *Energy efficiency*

Energy Management

Energy Audit
Smart community – nZEB



REGIONE LAZIO





Energy & Clean Technologies – *Energy efficiency*

Industrial partnership

Energy Management

Energy Audit
Smart community – nZEB



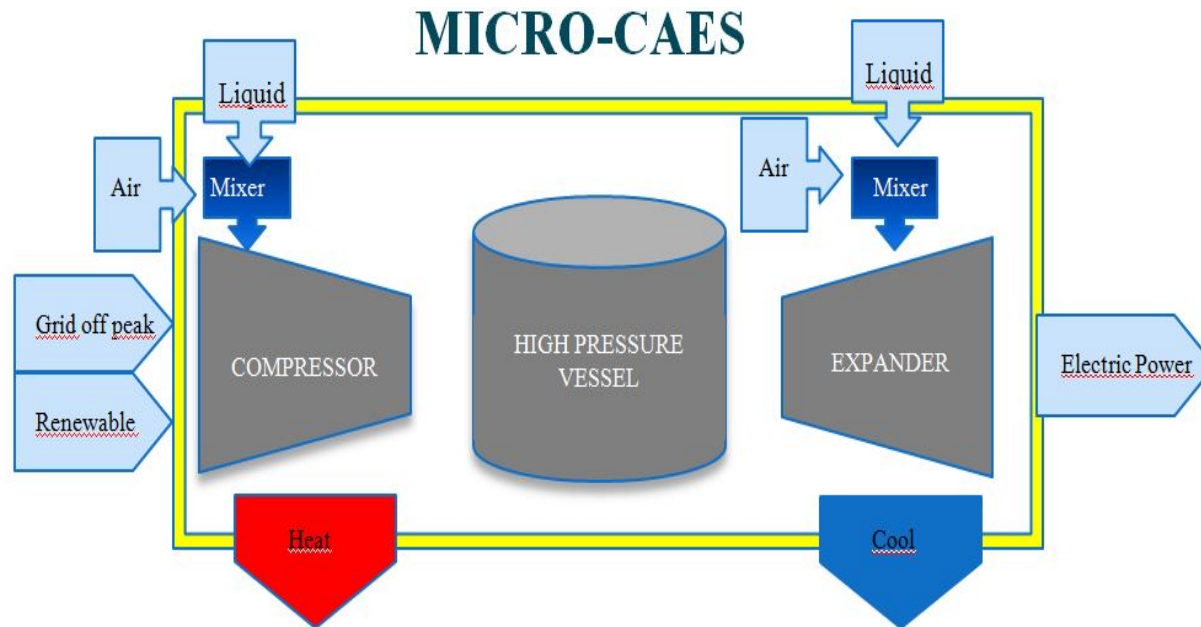
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Energy storage

SEAC
Sistema accumulo Energia Aria Compressa
POR FESR 2014-2020 Lazio (2017)



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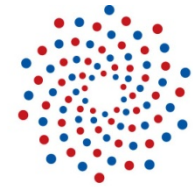
Industrial partnership

Energy storage

Methanol Sensors
UIA – Urban Innovative Actions: I4G
Innovation for Good, Sensible Schools (2016)

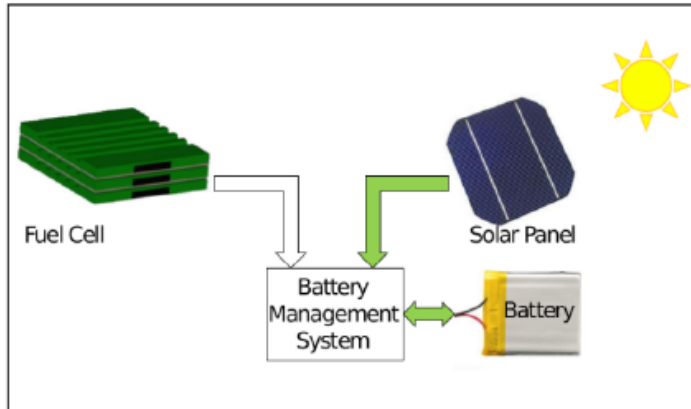


Città metropolitana
di Roma Capitale

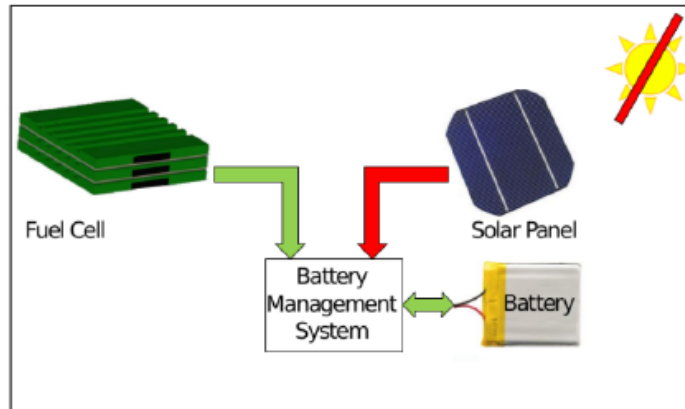


CAPITALE LAVORO

Sensor operating diagram powered by micro-DMFC and solar convenient panel



power only by solar panel



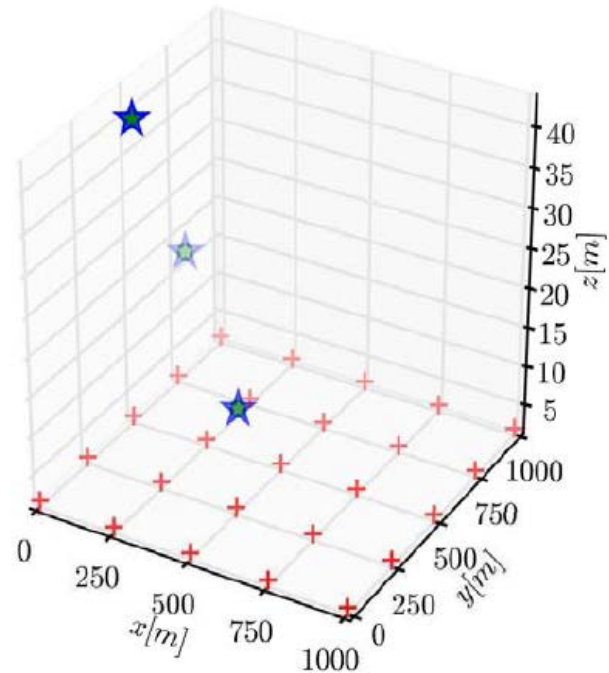
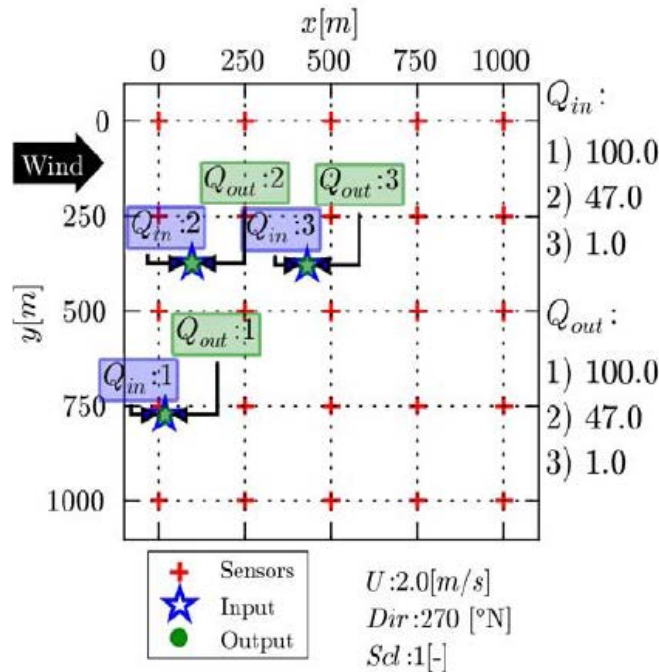
power by Fuel Cell

Energy & Clean Technologies – *Environmental monitoring*

Submitted Proposal

Air Quality
(GAIM)

SPECTRA - Sensors Platform for Environment Characterization and Threat Recognition Analysis
PNRM (2016)





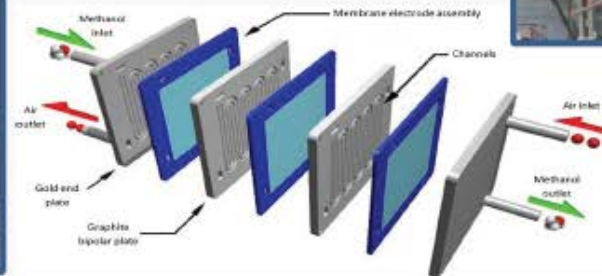
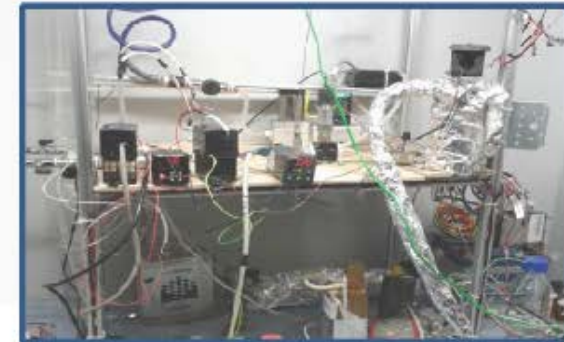
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Energy storage

Energy Stealth
DMFC – Direct Methanol Fuel Cell
DIMA-STE Research Contract (2016)



Energy & Clean Technologies – *Energy efficiency*

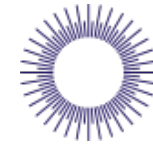
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Energy design

Progetto integrato SMIH

Life 2020 (2016)



SALVATOR MUNDI
INTERNATIONAL HOSPITAL

Progettazione energetica di un dispositivo elettromedicale innovativo basato sulle onde elettromagnetiche a bassa frequenza ed intensità





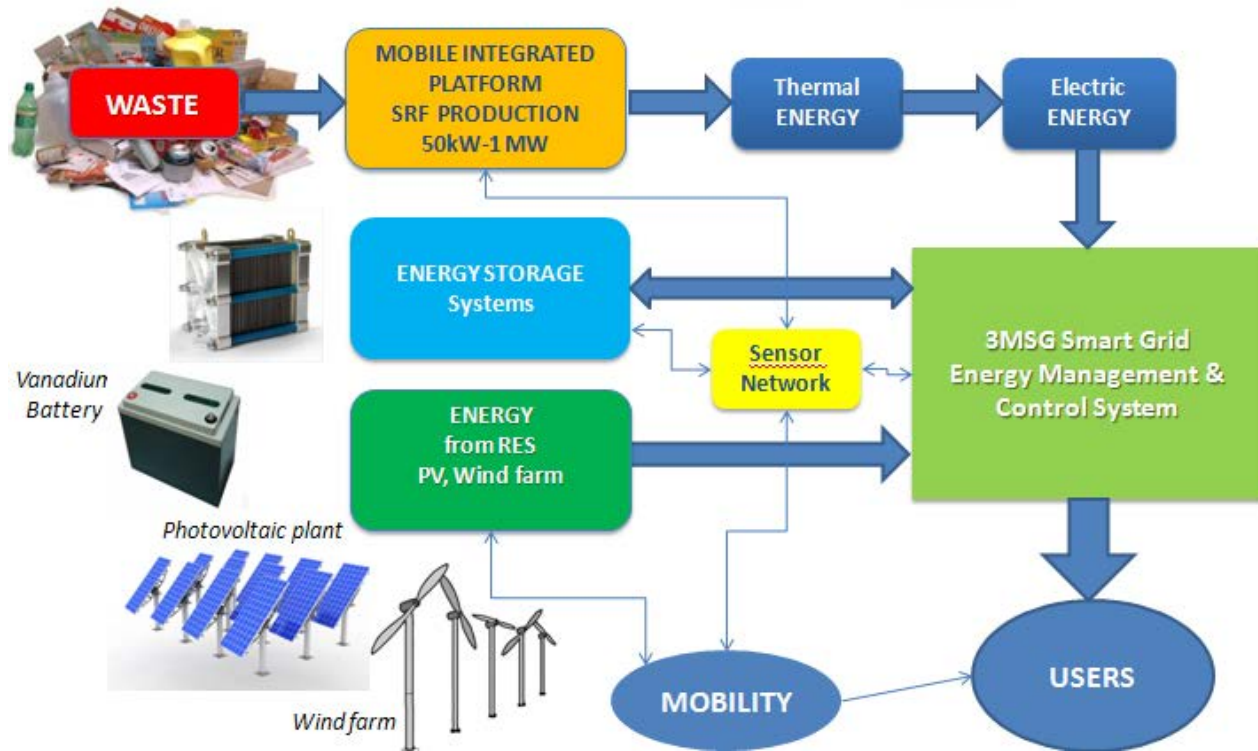
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Micro Mobile Smart Grid
EDA – European Defence Agency

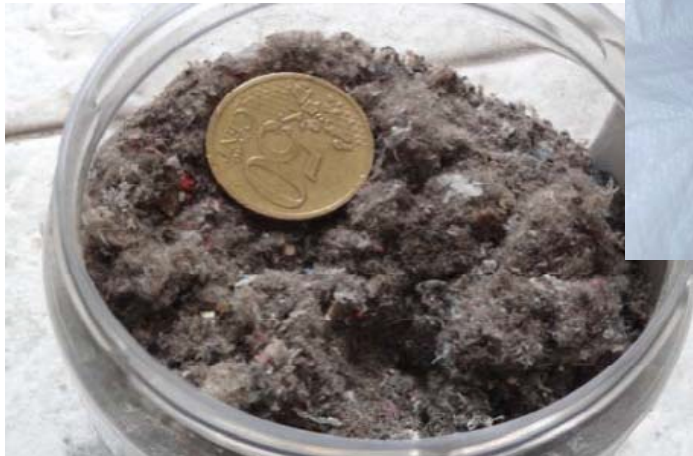




Energy & Clean Technologies – *Circular economy*

Waste management

Sviluppo tecnologico e scientifico per la produzione di “CSS Combustibile”
Research Contracts



Industrial partnership





Energy & Clean Technologies – *Circular economy*

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Industrial partnership

Waste
management

BIOINDEV
BIOgas INDUstry DEVelopment
POR FESR 2014-2020 Lazio (2017)



SSD: ING-IND/09 Sistemi per l'Energia e l'Ambiente